**REQUEST FOR PRE-APPEAL BRIEF CONFERENCE
FOR PANEL OF EXAMINERS TO FORMALLY REVIEW
LEGAL AND FACTUAL BASIS OF REJECTIONS**

Dear Sirs:

Sopko et al. `601 relates to a method and apparatus for coating a glass substrate using a method of depositing a vaporized pyrolizable organometallic salt material onto an upper surface of the glass substrate using vaporization nozzles. It is respectfully submitted that the scope and content of Sopko et al. `601 relates to a substantially different art from that of the presently claimed invention. The basic principles of the method utilized for establishing the coating according to the present invention and that of Sopko et al. `601, the nature of the materials involved and the form in which they are used, are fundamentally different from one another.

More specifically, the presently claimed method utilizes the technique of powder coating, that is to say, a technique in which a polyester thermosetting material is deposited in powder form on a surface of the substrate, and the formed layer of powder is then heated in order to fuse the powder and bring it through its melt phase into the gel state and then on through cross-linking into a fully-cured state. The method taught by Sopko et al. `601, on the other hand, utilizes a technique in which a coating fluid in the form of a *heated* coating vapor or a coating spray of an organo-metallic composition is directed onto a *heated* surface of the substrate, and the heat of the surface pyrolyzes the vapor or spray of the organo-metallic composition into a metal-oxide coating (see column 1, lines 43-47 of Sopko et al. `601). Moreover, the Sopko et al. `601 method specifically teaches that the temperature required for pyrolyzing the vapor or spray is above some 566° C (see column 6, lines 27-29 of Sopko et al. `601) which is more than double the temperature used for curing a powder coating of the present invention. It is respectfully submitted that the teaching of Sopko et al. `601 of coating with a pyrolitic oxide by application of a heated vapor or spray of an organo-metallic composition, has no obvious relevance and/or relation to the art of powder coating and one of ordinary skill in the art would not considered any aspect of what is taught by Sopko et al. `601 as having usefulness in a powder-coating method.

The presently claimed invention recite a method of manufacturing a powder-coated glass product in which a thermosetting powder is deposited on a first surface of a glass substrate, as mentioned above, and the deposited powder deposited on the first surface is cured to form a coating on the first surface by the application of heat to the thermosetting powder *by transmission of the heat through the glass substrate from the second surface to the first surface of the substrate*.

The teaching of Sopko et al. `601, in relation to the provision of heating means under the glass is merely to avoid damage or warpage to the glass from the required close proximity to the upper surface of the specialist equipment, the spray nozzles in particular, used for vapor deposition (see column 9, lines 28-36 of Sopko et al. `601). Furthermore, the warpage of the

glass results from the elevated temperature (above 566° C) used for the pyrolytic vapor-deposition process. This temperature is near the temperature (649° C) at which the glass is not dimensionally stable (see column 6, lines 61-63 of Sopko et al. `601); a temperature this high is nearly double the temperature required by the presently claimed invention for curing the powder coating.

Additionally, It is noted that there is absolutely no reference by Sopko et al. `601 to the heating of the substrate from the opposite side (i.e, the under-surface) affecting evenness or any other quality of the coating. The only reference by Sopko et al. `601 to the quality of the coating produced by the vaporization nozzles 64, is to improve durability resulting from use of the heat source 80 *above the glass* (see column 3, line 16 of Sopko et al. `601). The effect of heating the under-surface of the glass is contrasted with this (see column 3, line 17 of Sopko et al. `601) as reducing glass warpage, and is emphasized strongly as being independent of the formation of the coating above.

The Examiner acknowledges that Sopko et al. `601 is silent concerning deposition and curing of a thermosetting powder material and attempts to overcome this deficiency by referring to Hashizume `817 and alleging the this reference discloses that, "... one of ordinary skill in the art, due to environment considerations would have known to modify the process by involving the present composition." [paragraph 4, lines 7-8 of the Detailed Action]. It is respectfully submitted that this comment appears to be solely driven by hindsight and not by what the applied references teach to one skilled in the art. That is, the Applicant respectfully submits that it is not possible to modify the Sopko et al. `601 process to deposit thermosetting powder without radically changing that process. That is, a thermosetting powder cannot be deposited as a coating fluid in the form taught by Sopko et al. `601, namely, in the form of a heated coating vapor or a coating spray at the temperatures used by Sopko et al. `601 since the powder would cure into a solid mass before it reaches the glass. Accordingly, radical change of what Sopko et al. `601 specifically teaches, both as to process and apparatus, would clearly be required in order to possibly arrive at the Examiner's suggestion. The Applicant respectfully submits such radical changes/modifications to Sopko et al. `601 would involve, for example, the replacement of vaporization nozzles 64, including its vacuum hoods 38 and 40, with an electrostatic powder spraying unit (as used by Hashizume `817) and the heat source 80 above the glass would be eliminated since the temperature at which deposition of the powder on the substrate takes place ("preferably 170 to 230 degrees Centigrade" - Hashizume `817 paragraph [0028], line 7) is significantly lower than the temperature (some 566° C – see Sopko et al. `601, column 6, lines 27-29) at which the pyrolytic oxide coating is produced by Sopko et al. `601.

These examples of radical changes to Sopko et al. `601 amount to mutilation of what is taught by Sopko et al. `601 and are entirely destructive of that teaching – the removal of the apparatus required for performance of the Sopko et al. `601 method is concomitant with mutilation of the teaching of the method. Further, the provision of the heater 80 is of the essence of the Sopko et al. `601 teaching in achieving the durable coating that Sopko et al.

`601 sets out to obtain by eliminating the limitations of the prior art pyrolytic oxide coating process (see column. 2, lines 25-27 of Sopko et al. `601). Dispensing with the equipment for pyrolytic oxide coating takes away all reason for the Sopko et al. `601 disclosure and removes any relevance of the heater 80.

As made absolutely clear *In re Ratti*, 270 F.2d at 813, 123 USPQ at 352, a rejection of a claim is untenable where, "... the suggested combination of references would require a substantial reconstruction and redesign of the elements shown in the primary reference as well as a change in the basic principle under which the primary reference construction was designed to operate." The suggested combination of Sopko et al. `601 in view of Hashizume `817 would require a substantial reconstruction and redesign of the elements, shown in Sopko et al. `601, as well as a change in the basic principle (namely, deposition of a vaporized pyrolizable organometallic salt material onto an upper surface of a glass substrate using vaporization nozzles) under which the apparatus, as taught by Sopko et al. `601, was constructed and designed to operate.

Furthermore, the 'modification' removes any relevance of the under-surface heaters 108 or corresponding infra-red heaters. The hypothesis advanced by Sopko et al. `601, for under-surface heating of the glass substrate, is that there is cooling of the top-surface when vapor-deposition of the pyrolytic oxide coating takes place, and that, "[h]eating the bottom surface 112 of the glass ribbon makes it pliant and the glass ribbon slumps under its own weight thereby minimizing or eliminating the glass ribbon warpage. (see column 10, lines 15-17 of Sopko et al. `601). This is in the context of the top-surface of the Sopko et al. `601 glass surface being at a temperature of at least 566° C (see column 6, lines 27-29 of Sopko et al. `601) which is more than double any temperature required for baking the Hashizume `817 thermosetting powder (see paragraph [0028], lines 6-8 of Hashizume `817). Thus, if the Sopko et al. `601 process and apparatus were to be modified, the much lower temperatures at which the powder coating would be deposited and baked would not affect the upper-surface of the ribbon or substrate in the way Sopko et al. `601 experience, and heating the under-surface to make it pliant would be undesirable and indeed might well result in warpage (the precise defect that the under-surface heating is intended to eliminate).

It is submitted therefore that even if one skilled in the art were to 'modify' the Sopko et al. `601 process and apparatus to adopt the Hashizume `817 teaching of deposition of powder-coating material, the resultant process and apparatus would not be in accordance with the present invention as specified in claims 27-31, 37 and 45-47 and 49. Furthermore, the Hashizume `817 teaching does not involve heat applied to *cure* the thermosetting powder by transmission of heat through the glass substrate, as required by independent claims 45, 47 and 49.

It is respectfully submitted that both Hashizume `817 and Sopko et al. `601 are concerned with establishing a coating on a substrate, but the coating materials are significantly different in the two cases and the techniques used are very different, to the extent that one

skilled in the art considering the Sopko et al. `601 vapor-deposition process and apparatus would immediately understand that the process and apparatus, and the techniques and temperatures adopted for them, would not be applicable for producing a coating of thermosetting powder. Such a skilled person would accordingly not seek to 'modify' the Sopko et al. `601 process and method in the way proposed by the Examiner, as it would require invention to do so.

The Examiner also advances environmental considerations as the motivation for the skilled person to make the proposed 'modification' of the Sopko et al. `601 process and apparatus. But if the skilled person is aware of the Hashizume `817 technique of coating using thermosetting powder as advantageous environmentally over the Sopko et al. `601 process and apparatus, it is submitted that the skilled person–absent hindsight–would more simply and directly adopt the Hashizume `817 (or Gerhardinger et al. `199) teaching rather than seeking to use and 'modify' the Sopko et al. `601 process and apparatus. The less environmentally advantageous Sopko et al. `601 process and apparatus contains nothing of any explicit or implicit relevance to powder coating, and for this reason would clearly be discarded.

The Examiner further states that, "... All of the elements were known within the art. The only difference is a single disclosure containing all of the presently claimed elements. .... The Courts have made it clear that the teaching, suggestion, or motivation test is flexible and an explicit suggestion to combine the prior art is not necessary. The motivation to combine may be implicit and may be found in the knowledge of one of ordinary skill in the art, or in some cases, from the nature of the problem to be solved."

But in the present case, the requirement of each of the independent claims 45, 47 and 49 for the application of heat to the thermosetting powder by transmission of the heat through the glass substrate to cure the thermosetting powder is not taught, suggested, disclosed, hinted at or in any way known from either Sopko et al. `601 or Hashizume `817, or (as previously accepted by the Examiner) Gerhardinger et al. `199 . The Sopko et al. `601 heat source beneath the glass has the function of heating the bottom surface 112 of the glass ribbon to make it pliant in order to eliminates or minimizes glass ribbon warpage (see column 10, lines 14-17 of Sopko et al. `601). It does not apply heat to cure thermosetting powder by transmission of the heat *through the glass substrate*, as required by independent claims 45, 47 and 49. It is submitted, with due respect, that there is fundamentally no objective reason to combine the teachings of the cited references as advanced by the Examiner and, therefore, a prima facie case of obviousness has not been established [*In ex parte Levengood,* 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993)].

In addition, the new, independent claim 50 includes all the limitations of claim 45, and it is submitted therefore that claim 50, like claim 45, is patentable over Sopko et al. `601 in view of Hashizume `817 and Gerhardinger et al. `199 as argued above.

Furthermore, it is submitted that claims 40-44 and 48 are each distinct from the art cited against them, and that claims 33-36 and 38 are further distinguished from that cited art, in that

there is no disclosure of all the features of the invention recited in the claims. This assertion is generally accepted by the Examiner, but the Examiner follows acceptance of this by characterizing Boucher et al. `466 and Storrs et al. `964 as "teaching references" in respect of the concept of, "... metal foil and an inward extension in order to yield an edge seal feature that is capable of providing dual pane glazings protection from moisture, dust, and dirt and in combination with the primary reference discloses the presently claimed invention."

Following this, the Examiner identifies Boucher et al. `466 as disclosing, "... the use of metal edge seals on a transparent assembly" and Storrs et al. `964 as disclosing, "... a metal edge strip as holding means that forms inward extensions."

However, it is to be noted that the teaching by Storrs et al. `964 concerning "a metal edge strip" is limited to the edge binding 16 of Figure 2, which is identified on page 2, within lines 56-67 simply as "a metal strip held on by friction or otherwise" [the Storrs et al. `964 edge bindings 35 and 46 of Figures 4 and 5 respectively are referred to in unspecific terms on page 3, lines 15-17 and 30-31, and the item 52 of Figure 6 is described on page 3, lines 52-68 as a "metallic molding" as distinct from a metal strip]. There is nothing taught by Storrs et al. `964 concerning the extent to which their "metal strip" is to extend from the edge. Thus, the "teaching references" provided by Boucher et al. `466 and Storrs et al. `964 do not teach anything relevant to the limitation of claim 40 that, "... the metal foil extends inwardly only partially across the back surface from the edges by a distance within the range of 100 – 150 mm for reduction of thermal stress in the glass substrate."

Moreover, the "teaching references" do not teach anything going beyond the "metal strip" being "held on by friction or otherwise" to the surface of the glass itself. Although the, "or otherwise" may extend to adhesion to the glass surface, there is no teaching relevant to the further requirement of claim 40 that the metal foil is, "... bonded to a back surface of the thermosetting powder coating [of the glass]."

The fact that the bonding of the foil to the coating rather than to the glass, and the fact that the limited extension of the foil onto the coating rather than the glass results in thermal-stress relief to the glass is surprising and clearly not an obvious outcome from what is taught by the cited references. In these circumstances therefore, it is submitted that the powder-coated glass product is clearly patentable over the cited art.

Additionally, it is notable that the property of thermal-stress relief by the use of foil is not advanced in any of the cited art to provide motivation towards adoption of the teachings of the "teaching references". Claims 40 and 48 include wording to emphasize this quality attributable to the invention.

Claim 48 recites a spandrel panel that includes the features of (a) metal foil bonded to the back surface of a thermosetting powder coating on a glass substrate, and (b) extension of the foil inwardly from edges of the coating by a spacing that is between 100 mm and 150 mm, for reduction of thermal stress in the glass substrate. Thus, it is submitted that the spandrel panel of claim 48, like the product of claim 40, is patentable over the cited art.